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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,072	02/12/2001	Huei-Tarn Liou	11993/1	9795

26646 7590 10/04/2002

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EXAMINER

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ART UNIT PAPER NUMBER

1762

DATE MAILED: 10/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/782,072	LIQU ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, claims 1-5 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that there is no serious burden on the examiner. The argument is incorrect because a serious burden exists in the differing issues likely to arise during the prosecution of the process and product claims.

Applicant also argues that restriction may be made only if the inventions are both independent and distinct. The argument is unconvincing because the law has been interpreted as not requiring that the inventions are both independent and distinct. From MPEP 802.01:

The law has long been established that dependent inventions (frequently termed related inventions) such as used for illustration above may be properly divided if they are, in fact, "distinct" inventions, even though dependent.

MPEP 806.05-806.05(i) give examples of such proper restrictions. The Examiner further notes that the passage cited by Applicant from MPEP 803 states that "(A) The inventions must be independent... or distinct..." (emphasis added).

Applicant also argues that the patentability search of the product claims would necessarily overlap the search of the process claims. The argument is incorrect. A search in class 427 (coating methods) would not be required for the product claims of Group II. Even if the argument were correct, it would not be convincing because it does not address the standard for the restriction requirement.

Applicant also argues that the product claims require the method of the product. The argument is incorrect because product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. See MPEP 2113.

Applicant's arguments that the examiner's proposed alternative method would have resulted in a different product are unconvincing because they are unaccompanied by evidence commensurate in scope with the claims.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 6-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are unclear because the clause "drying the quartz or high aluminum-oxide-containing tube" appears twice. It is unclear whether this is redundant or whether two separate drying steps are intended. The examiner treated the claim as only requiring one drying step.

The terms "high" and (in this context) "uniformly" in claims 1-5 are relative term which render the claims indefinite. The terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For purposes of applying art, the term "high" has been treated as inclusive of any amount of aluminum oxide and the term "uniformly" has been treated as inclusive of any degree of uniformity suitable for the intended use.

The terms "uniformly" and "free of defects" in this context appear to be functions of the intended use of the product. For purposes of applying art, any material that is suitable for its intended use has been interpreted to be "uniform" and "free of defects".

The second occurrence of "the" in the "smearing" clause should apparently be deleted.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deferment (U.S. Patent 3,653,946, hereafter '946) in view of Fitch (U.S. Patent 2,984,575, hereafter '575) and Kurschner et al. (U.S. Patent 5,795,841, hereafter '841).

Claims 1 and 4: '946 teaches a method of gilding a ceramic substrate, such as alumina (col. 4, lines 33-35), which comprises:

preparing a coating material which contains gold (col. 2, lines 58-75);

cleansing the substrate (col. 3, lines 13-16), which may be alumina (col. 4, lines 33-35);

brushing (i.e., smearing) the prepared coating material on the substrate to form a film thereon (col. 3, lines 18-22);

drying the substrate (col. 3, lines 22-24);

baking the substrate at a temperature of 427-1054 °C to form a gold film (col. 3, lines 30-31; col. 4, line 15);

and cooling the substrate to room temperature (col. 3, lines 69-75).

'946 does not explicitly teach A) a tubular substrate, B) inspection of the substrate to see if the film is free of defects, C) the particularly claimed baking time and temperature, and D) retrieval of the tube after the temperature in the stove is below 110 °C.

A) '946 does not teach that the substrate is tubular. However, '575 teaches that decorative gold coatings may be provided for tubular ceramic substrates. See, for example, col. 12, lines 5-21, which demonstrate tubular substrates including a tumbler, a bottle, and a tube. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '946 on a tubular ceramic substrate to have provided a decorative coating for the substrate because '946 teaches a method of applying adherent gold coatings on ceramic substrates and '575 teaches that decorative gold coatings are desired on tubular ceramic substrates.

B) '946 does not explicitly teach inspection of the substrate to see if the film is uniform and free of defects. However, it is extremely well known to inspect a completed product to determine if it is satisfactory. For instance, '575 teaches that after the gold films are formed, they are observed, and the quality of the film is judged (col. 12, lines 1-22). In addition, '946 teaches that defects, such as bubbles and blisters, are undesirable. Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was

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made to have inspected the films to judge the quality (i.e., uniformity) and to have evaluated whether such defects existed in order to have determined if the products would have been suitable.

C) '946 does not specifically teach baking at 780-880 °C. However, the disclosed baking range (427-1054 °C, discussed above) overlaps the claimed range. The baking times of '946 are less than the claimed times. However, '946 discloses that an adherent gold coating is desired (Title) and indicates that further baking may strengthen the bond of gold to the substrate (col. 4, lines 3-15). However, '841 teaches that the adhesion of metals, such as gold (col. 1, lines 10-19 and col. 2, lines 1-4), to ceramic substrates, such as alumina or quartz (col. 1, lines 50-65) may be improved by heating at 200-1000 °C for 0.5 to 24 hours. The heat treatment temperatures and times overlap the claimed ranges. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected a temperature and time form within the claimed ranges because '841 discloses that they are operative for increasing the adhesion of metals to ceramics. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

D) '946 does not explicitly state that the substrate is removed from the stove after the temperature has been reduced to room temperature. However, it does teach that the cooling of the substrate should be controlled in order to reduce stress (col. 3, lines 69-72). The Examples indicate that this may be done by leaving the substrate in the furnace (i.e., stove) until a certain temperature is reached (col. 4, lines 46-51; col. 5, lines 1-12). The substrate may be removed at approximately 200 °C. The teaching at col. 5, lines 10-12 makes it appear that the substrate may also be left in the oven until it reaches room temperature.

7. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fefferman '946 in view of Fitch '575 and Kurschner '841 as applied to claim 1 above, and further in view of Chow et al. (U.S. Patent 5,759,230, hereafter '230).

'946, '575, and '841 are discussed above, but teach the use of gold resins rather than gold chloride as a precursor for the gold film. However, '230 teaches that metal films may be

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made from metal precursor solutions including those of metal chlorides (col. 1, lines 6-8; col. 2, line 57-col. 3, line 10). Gold (III) chloride ( $\text{AuCl}_3$ ) is specifically disclosed as an operative precursor in Table I. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used gold (III) chloride as the gold precursor in place of the gold resins of '946 with the expectation of similar results because '230 teaches that it is also able to be decomposed to form a gold film.

The references do not explicitly teach that the concentration of the precursor is 10-11%. However, '841 suggests a precursor concentration of 0.01-2% (col. 2, lines 46-48), '575 teaches appears to teach the use of about 10 weight % of the gold precursor (Examples IX and X), '946 teaches the use of about 20% of the gold precursor (col. 4, lines 22-62), and '230 teaches the use of about 0.3-6 % of the gold precursor (Table I; the examiner assumed that the solution density was approximately that of the solvent, ethylene glycol: 9.31 lb./gal.). Taken collectively, the references suggest precursor concentrations of 0.01-20%. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

Claim 3: '946 and '575 do not explicitly state that the substrate is kept at room temperature for 30 minutes after the coating material is smeared on. However, normally objects such as tumblers and glasses are kept at room temperature between uses, and it is frequently more than 30 minutes between uses of a tumbler. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have kept a substrate, such as a tumbler, at room temperature for at least 30 minutes after the film was formed (and therefore after the coating material was smeared on) as part of the normal use of a tumbler.

Claim 4: 12 hours is within the time range disclosed by '841, as discussed above.

Claim 5: '946 does not explicitly teach removing the substrate at less than 100 °C and cooling it at room temperature. However, the examples teach removing the substrate at about 200 °C (col. 4, lines 46-50; col. 5, lines 4-6) or room temperature (col. 5, lines 10-12), thereby teaching an effective range of room temperature to 200 °C. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have

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selected the overlapping portion of the range (just above room temperature to 100 °C) disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*MBC*

MBC

September 28, 2002



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